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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,806	07/12/2005	Andrew Lobbihler	US 1424/05	3989
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/523,806

Applicant(s)

LOHBIHLER, ANDREW

Examiner

TAMMY PHAM

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-29, 32, 40-42 and 48-74 is/are pending in the application.
4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 12-25, 28, 32-35, 48-51 and 61-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-848)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims **withdrawn** from consideration are 5,6,9-11,16,17,20-27,29,36,37,40-42,53-60 and 65-74.

DETAILED ACTION

Response to Amendment

1. Claims 7-8, 30-31, 38-39, 43-47, 75-82 have been cancelled. Claims 5-6, 9-11, 16-17, 20-27, 29, 36-37, 40-42, 52-60, 65-74 are withdrawn. Claims 1-4, 12-15, 18-19, 28, 32-35, 48-51, 61-42 are considered below.

Response to Arguments

2. Applicant's arguments filed 18 August 2009 have been fully considered but they are moot in view of the new grounds of rejection.

Restriction

3. This application contains claims 1-4, 12-15, 18-19, 28, 32-35, 48-51, 61-42 are drawn to an invention nonelected with traverse in the reply filed on 18 August 2009. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

4. **In regards to the previous restriction**, Applicant submits that because an office action has already been issue on its merits "*[t]he present election requirement therefore appear neither timely nor proper (Remarks 2).*" This is not persuasive. Although, the claim have been examined on it's merits on 27 June 2008, the amendments of 29 September 2008 changed the scope or the claims in which necessitated further and different searches, hence a restriction was issues on 21 May 2009 that reflected the newly amended claims. Further, MPEP allows

examiner to issue a restriction or an election of species whenever is appropriate, regardless if the claims have been examined on its merits or not.

5. **In regards to the previous restriction,** Applicant submits that “[j]ust how each figure relates to a different embodiment, is neither shown by the Examiner nor understood by the Applicant (Remarks 2).” This is not persuasive. The different drawings reflect different embodiments as described in Applicant’s “*Brief Description of T[h]e Drawings.*”

In regards to the previous restriction, Applicant submits that “[c]laims 1 and 32 are generic (Remarks 3).” This is persuasive, and hence claims 1 and 32 have been considered below.

6. Applicant's election with traverse of the previous restriction requirement of 22 December 2008 in the reply filed on 21 May 2009 is acknowledged. The traversal as analyzed above is not found persuasive.

7. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-4, 12-15, 18-19, 28, 32-35, 48-51, 61-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. **In regards to independent claims 1, 32**, the newly amended claim language now recites that *“the electronic circuit further comprising an analog-to-digital converter (ADC) for each processing channel operable to over-sample the radio signal by a factor at least five times faster than the PN chip rate of the radio signal.”* However, it is unclear from the original disclosure how this process is *“at least five times faster than the PN chip rate of the radio signal.”* Appropriate correction is necessary. In the meantime, Examiner takes the broadest reasonable interpretation and will take this statement to mean that the process is five times faster than any chip rate of any radio signal.
10. **In regards to claims 1-4, 12-15, 18-19, 28, 32-35, 48-51, 61-42**, these claims are being rejected for being dependents upon improperly claimed 1 and 32.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-2, 4, 12-15, 18-19, 28, 32-33, 35, 48-51, 61-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. (U.S. Patent No.: 6,414,673 B1) in view of Liu et al. (U.S. Publication No.: 2002/0050983 A1).
12. **In regards to independent claims 1, 32, 48,** Wood teaches of a system for sensing position (Fig. 26) comprising:
 13. at least one transmitting device (Fig. 26, item 30c) operable to transmit a radio signal (Fig. 26, item 16);
 14. at least four processing channels (Fig. 26, item 118; column 2, lines 65-68) each comprising a pair of at least two receiver units (Fig. 26, item 20a-b) in spaced relation to each other and receiver unit (Fig. 26, item 20a-b) operable to receive a different version of the radio signal (Fig. 26, item 16) in the form of a carrier signal; and,
 15. an electronic circuit (Fig. 26, item 57) coupled to the processing channels and operable to determine a location of the radio transmitting device (Fig. 26, item 30c) in relation to the receiver units (Fig. 26, item 20a-b) based on a measurement of the radiated-signal-strength(RSS) and of the carrier signal phase delay between each of the different versions of the radio signal (Fig. 26, item 16) for each pair of receiver units (Fig. 26, item 20a-b; column 5, lines 35-40);

16. the electronic circuit (Fig. 26, item 57) further comprising an analog-to-digital converter (ADC) (as mentioned in column 5, line 30) for each processing channel (Fig. 26, item 118) operable to over-sample the radio signal by a factor at least five times faster than the chip rate of the radio signal.

17. Wood fails to teach that the radio signals is spread-spectrum coded and has a unique pseudo-noise (PN) code signal structure using longer PN-codes.

18. Liu teaches that the radio signals is spread-spectrum coded and has a unique pseudo-noise (PN) code signal structure using longer PN-codes (Fig. 2b).

19. It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the uniquely coded signals of Liu with the sensing position device of Wood. This combination has various benefits, including allowing the device to perform at different communication channels (Liu, section [0085]).

20. **In regards to claims 2, 33, 61,** Wood fails to teach of at least one additional radio transmitting device, each of the radio transmitting devices operable to transmit a radio signal orthogonal to each of the other radio signals transmitted by the other the radio transmitting devices, the electronic circuit further operable to distinguish each of the radio transmitting devices from the other radio transmitting devices based on the orthogonal radio signals, the

electronic circuit being further operable to determine a location of the radio transmitting devices substantially simultaneously based on the signal structure of the radio signal.

21. Liu teaches of at least one additional radio transmitting device, each of the radio transmitting devices operable to transmit a radio signal orthogonal to each of the other radio signals transmitted by the other the radio transmitting devices, the electronic circuit further operable to distinguish each of the radio transmitting devices from the other radio transmitting devices based on the orthogonal radio signals, the electronic circuit being further operable to determine a location of the radio transmitting devices substantially simultaneously based on the signal structure of the radio signal (sections [0016, 0146]).

22. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include the additional radio transmitting device of Liu with the sensing position system of Wood. This combination provides a system that is able to simultaneously identify, track, communicate with a plurality of touch input devices (Liu, section [0016]).

23. **In regards to claims 4, 35**, Wood teaches of at least one of the receiver units (Fig. 26, items 20a-b, 120) of one of the pairs of receiver units (Fig. 26, items 20a-b, 120) is shared with another one of the pairs of receiver units (Fig. 26, items 20a-b, 120).

24. **In regards to claim 12**, Wood teaches of only two of the receiver units (Fig. 26, items 20a-b, 120) and the location is expressed in a single-dimension (Fig. 26).

25. **In regards to claim 13**, Wood teaches that the receiver units (Fig. 26, items 20a-b, 120) remain fixed during operation.

26. **In regards to claim 14**, Wood as modified by Liu above in claim 1, teaches of three of the receiver units arranged in a triangular format, the electronic circuit operable to receive a first input from a first pairing of the three receiver units and further operable to receive a second input from a second pairing of the three receiver units, the pairings having only one of the receiver units in common, the electronic circuit further operable to determine a two dimensional position of the transmitting device based on a comparison of the first input and the second input (Liu, Figs. 6, 7).

27. **In regards to claim 15**, Wood as modified by Liu above in claim 1, teaches of four of the receiver units arranged in a rectangular format, the electronic circuit operable to receive four separate inputs from four respective pairings of the four receiver units, the electronic circuit further operable to determine a three dimensional position of the transmitting device based on a comparison of the separate inputs (Liu, Figs. 6, 7).

28. **In regards to claim 18**, Wood teaches that the electronic circuit (Fig. 26, item 57) comprises a channel pair processor connected to the receiver units (Fig. 26, items 20a-b, 120), a detector & position calculator connected to the channel pair processor (Fig. 26, item 57), and an output device (Fig. 26, item 93) for presenting the location to an electronic peripheral attachable

to the output device (Fig. 26, item 93).

29. **In regards to claim 19**, Wood teaches that the electronic peripheral is a computer (Fig. 26, item 87) and a display device (Fig. 26, item 93), the computer (Fig. 26, item 87) being configured to present a representation of the location on the display device (Fig. 26, item 93).

30. **In regards to claim 28**, Wood teaches that the receiver unit (Fig. 26, item 118) comprises an antenna (inherent) and a receiver element (Fig. 26, items 20a-b, 120).

31. **In regards to claim 49**, Wood teaches that the electronic circuit (Fig. 26, item 57) is further operable to determine the position of at least one of the radio transmitting devices (Fig. 26, item 30c) in the radio transmitting range.

32. **In regards to claim 50**, Wood teaches that the one or more radio transmitting devices are active devices (Fig. 26, item 30c).

33. **In regards to claim 51**, Wood teaches of generating an energy field in the propagating medium within the radio transmitting range (Fig. 26).

34. **In regards to claim 62**, Wood teaches that the one or more radio transmitting devices are active devices that generate a radio transmitting signal (Fig. 26).

35. **In regards to claim 63**, Wood as modified by Liu above in claim 1, teaches that the radio transmitting signal is an EM signal (Liu, Fig. 2a).

36. **In regards to claim 64**, Wood teaches that the propagating medium comprises free space in the radio-transmitting range (Fig. 26).

37. Claims 3, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. (U.S. Patent No.: 6,414,673 B1) in view of Liu et al. (U.S. Publication No.: 2002/0050983 A1) and Kent (U.S. Patent No.: 5,591,945).

38. **In regards to claims 3, 34**, Wood teaches of an antenna (inherent) associated with each of the receiver units (Fig. 26, item 20a-b) are spaced apart.

39. Wood as modified by Liu fails to teach that the spacing between the receiver units are about one-half of a wavelength of the radio signal.

40. Kent teaches that the spacing between the receiver units are about one-half of a wavelength of the radio signal (column 26, lines 20-25).

41. It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the receiver units of Wood as modified by Liu be spaced apart about one-half of a wavelength of the radio signal as taught by Kent, so that the signals are not analyzed separately (Kent, column 26, lines 24-25).

Conclusion

42. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

43. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammy Pham whose telephone number is (571) 272-7773. The examiner can normally be reached on 8:00-5:30 (Mon-Fri).

45. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

46. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TP
4 November 2009

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